#12/RLW 1731 9-24-02

Attorney Docket No. 0515-1023
PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Arnaud HORY et al.

Confirmation No. 8500

Serial No. 09/622,639

GROUP 1731

Filed October 12, 2000

Examiner C. Fiorilla

FAST PROTOTYPING METHOD BY LASER SINTERING OF POWDER AND RELATED DEVICE

REQUEST FOR RECONSIDERATION

Commissioner for Patents

Washington, D.C. 20231

Sir:

Reconsideration of the Official Action of June 19, 2002 is respectfully requested.

Accompanying the present response is a Letter to the Official Draftsperson including corrected formal drawings incorporating the proposed drawing corrections set forth in the request filed April 5, 2002.

Claims 13-21 are present in the application.

Claims 13-21 were rejected under 35 USC §103(a) as being unpatentable over FEYGIN 5,354,414, in view of DECKARD 5,639,070, and Dictionary of Ceramic Science and Engineering. Applicants respectfully traverse this rejection.

The claimed inventive process is directed to rapid prototyping by sintering in solid phase of any powder (claim 13), and particularly ceramic powders (claim 14).

FEYGIN describes a process for rapid prototyping with a laser beam which changes the physical or chemical properties of the powders. FEYGIN does not disclose that the sintering is in solid phase.

Even if FEYGIN uses the word "sintering", his use of the word does not correspond to the definition set forth in the Dictionary of Ceramic Science and Engineering and further his "sintering" is not that recited.

FEYGIN describes a sintering process in liquid phase. As shown in Fig. 27 and described in column 11, lines 20-40 of FEYGIN, the powder particles 63 are bonded with the adhesive component 64. As described in column 15, lines 1-8 of FEYGIN, the process employs at least two materials with two different melting temperatures. FEYGIN uses more often the words "bond", "fuse", "glue", and "adhesive" related to a sintering process in liquid phase.

Like applicants, FEYGIN tries to find a solution to reduce shrinkage in order to obtain pieces of precise dimensions. The solution of FEYGIN is different from applicants' solution. According to column 6, lines 29-33 of FEYGIN "This problem can be overcome by creating thin walled boundaries encapsulating the material of the object during the laminating process and then postprocessing the object in a furnace".

In sharp contrast to FEYGIN, applicants' claimed inventive process recites sintering in solid phase to obtain this solution.

FEYGIN does not describe heating the layer of powder prior to bringing it to the sintering temperature.

According to applicants' claimed invention, the ceramic powder or the mixture of ceramic powders is heated before sintering to reduce the energy supplied by the laser for increasing the rapidity of production of the object.

DECKARD describes heating the layer of powder to be sintered prior to sintering.

At column 6, lines 38-45, DECKARD specifies "Undesirable shrinkage of the article being produced has been observed to occur due to differences between the temperature of the particles not yet scanned...and the previously scanned layer. It has been found that a downward flow of controlled-temperature air through the target area is able to moderate such undesirable temperature differences."

DECKARD heats the powder not to reduce the energy supplied by the laser but to reduce the difference between the temperature of the powder not yet scanned and the temperature of the powder previously scanned.

For the above reasons, applicants submit that it would not have been obvious to one of ordinary skill in the art to combine the teachings of FEYGIN and DECKARD to render unpatentable the claimed inventive process.

Furthermore, like FEYGIN, DECKARD misuses the word "sintering". DECKARD describes sintering in liquid phase. See, for example, column 8, lines 1-5 of DECKARD.

In view of the above remarks, applicants respectfully request reconsideration and withdrawal of the rejection of claims 13-21 under 35 USC §103(a) as being unpatentable over FEYGIN in view of DECKARD and Dictionary of Ceramic Science and Engineering.

In light of the above remarks, applicants believe that the present application is in condition for allowance and an early indication of the same is respectfully requested.

Respectfully submitted,

YOUNG & THOMPSON

By J. Reed Batten Jr

J. Reed Batten, Jr.
Agent for Applicants
Registration No. 27,099
745 South 23rd Street
Arlington, VA 22202
Telephone: 521-2297

September 19, 2002

#12

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FAST PROTOTYPING METHOD BY LASER SINTERING OF POWDER AND RELATED DEVICE

SUBMISSION OF FORMAL DRAWINGS

Commissioner for Patents

Washington, D.C. 20231

Sir:

Please replace the drawings originally filed with the accompanying new formal drawings, incorporating the proposed drawing corrections set forth in the Request filed April 5, 2002.

Respectfully submitted,

YOUNG & THOMPSON

By _____

J. Reed Batten, Jr.
Agent for Applicants
Registration No. 27,099
745 South 23rd Street
Arlington, VA 22202
Telephone: 521-2297

September 19, 2002